

Customization of telemetry Dashbaords in Health Insights

Dashboards in KPI definition

Dashboards

Here is an example KPI with 2 dashboards and will be shown in the device view page of Health Insights, and label indicated in this json file will be used as the `label` in the UI. `value` here points to the actual `Grafana` dashboard json file. These Grafana dashboards will have a `InfluxQL` queries to show the right KPI data and alerts and uses template variables for runtime customization.

If this dashboard needs to be customized, we should have to updated the pointed json file or add a new one etc.

```
{
  "dashboards": {
    "dashboard": [
      {
        "type": "jsonfile",
        "value": "Pulse-memory-utilization-summary.json",
        "label": "Summary"
      },
      {
        "type": "jsonfile",
        "value": "Pulse-memory-utilization-raw.json",
        "label": "Raw"
      }
    ]
  }
}
```

- **Accessing `Grafana` to allow for dashbaord customization**

- **Change grafana.ini configuration file on crosswork VM shell**

```
Login to CNC shell as sudo, then...
@crosswork shell, edit grafana.ini file and set `disable_login_form` to `false`
bash-5.1# kubectl edit configmaps robot-grafana
      disable_login_form = false
@crosswork shell, restart grafana service
bash-5.1# kubectl exec -it robot-grafana-
```

- **Identify and retriive `grafana` admin credentials**

The procedure to retriive the admin credentials to be log-in to grafana UI can be provided by CX team or Development team , please reachout for instructions.

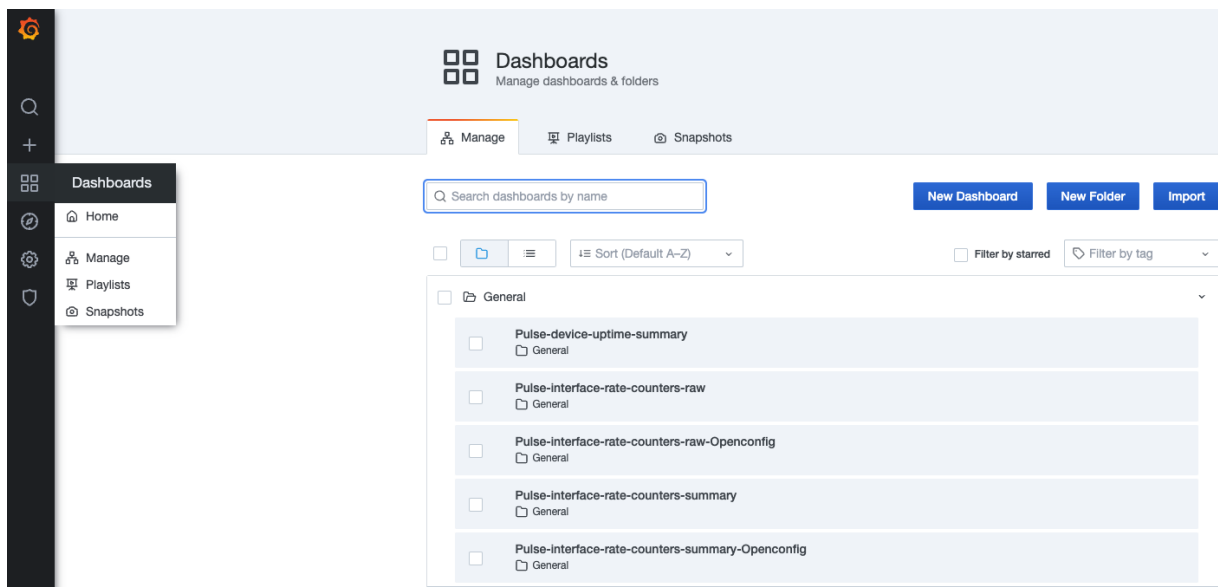
- **Access `grafana` UI**

Use a chrome or mozella browser with following URL format `https://:/robot-grafana/`

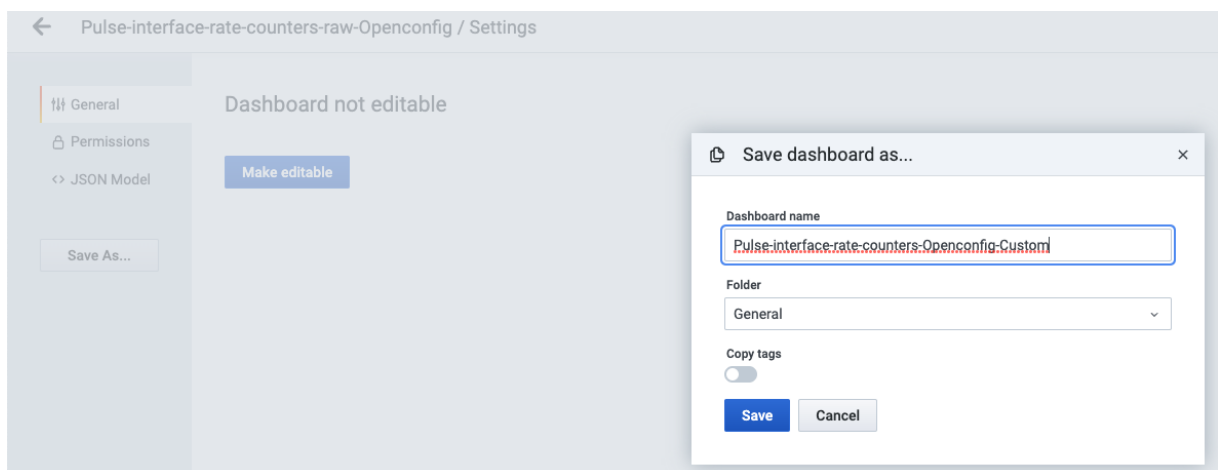


Access, Customize, Save , Export, Package with KPI

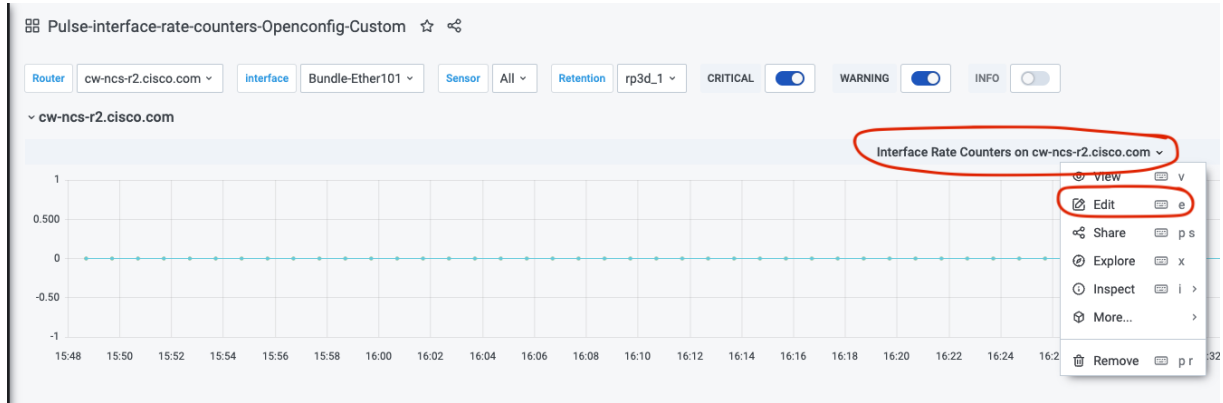
- After `grafana` access is enabled based on the steps above, access the dashboard that needs customization from `Dashboards > Manage`



- Choose the dashboard and save as with a new name and set it as `editable`
`Dashboard settings > Save As...`



- Edit and modify dashboard panels , charts , Variables as per the need, refer to [Grafana Docs](#) for details
- In order to modify the content thats shown in the panels, refer to [Influx Query Builder](#)
- Here are some examples, and ensure at each step **SAVE** the changes
 - Change a panel type from chart to a table



Interface Rate Counters on cw-ncs-r2.cisco.com

Time	CollectorId	EncodingPath	Producer	UUID	name	ProfileDs	counters_in-octets	counters_out-octets
2023-01-13 15:50:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 15:51:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 15:52:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 15:53:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 15:54:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 15:55:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 15:56:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 15:57:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 15:58:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 15:59:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 16:00:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 16:01:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0
2023-01-13 16:02:42	a3e41a3-b006-4090-9583-6...	openconfig-interfaces:interfa...	cw-ncs-r2.cisco.com	1e357600-f21e-425d-8e64-c...	Bundle-Ether101	GNMIDataRateFilter	0	0

Query: SELECT /\$RawFields/ FROM \$RP:'openconfig-interfaces:interfaces/interface/state' WHERE "Producer" == /\$Router/ AND "name" == /\$Interface/ AND TimeFilter GROUP BY *

FORMAT AS: Table

- Change dropdown menu items behavior

← Pulse-interface-rate-counters-Openconfig-Custom / Settings

General

Annotations

Variables

Links

Versions

Permissions

<> JSON Model

Save dashboard

Save As...

Variables

Variable	Definition				
Router	Show Tag Values FROM \$RP:'openconfig-interfaces:interfaces/interface/state' WITH Key = "Producer"	✓	🔗	↓	🗑️
Interface	SHOW TAG VALUES FROM \$RP:'openconfig-interfaces:interfaces/interface/state' WITH KEY= "name" where Produc...	✓	🔗	↑	🗑️
RawFields	SHOW FIELD KEYS FROM \$RP:'openconfig-interfaces:interfaces/interface/state'	⚠️	🔗	↑	🗑️
RP	show retention policies	✓	🔗	↑	🗑️

Unknown Variables ⓘ

Variable	
col	🔗
timeFilter	🔗

Show dependencies

New

← Pulse-interface-rate-counters-Openconfig-Custom / Settings

General
Annotations
Variables
Links
Versions
Permissions
JSON Model

Variables > Edit

General

Name

interface

Type

Query

Label

optional display name

Hide

Description

descriptive text

Query Options

Data source

robot_alertdb

Refresh

On Dashboard Load

Query

SHOW TAG VALUES FROM \$RP'openconfig-interfaces:interfaces/interface/state' WITH KEY= "name" where Producer =~ /\$Router\$ /

Regex

/{.*(<text>.*)(?<value>.*).*/

Sort

Disabled

Selection Options

Multi-value

☒

Include All option

☒

Custom all value

blank = auto

Value group tags

Experimental feature, will be deprecated in Grafana v8.

Enabled

☐

Preview of values

All

Bundle-Ether101

HundredGigE0/0/1/0

HundredGigE0/0/1/1

HundredGigE0/0/1/2

HundredGigE0/0/1/3

HundredGigE0/0/1/4

HundredGigE0/0/1/5

MgmtEth0/RP0/CPU0/0

Null0

TenGigE0/0/0/0

TenGigE0/0/0/1

TenGigE0/0/0/10

TenGigE0/0/0/11

TenGigE0/0/0/12

TenGigE0/0/0/13

TenGigE0/0/0/14

TenGigE0/0/0/15

TenGigE0/0/0/16

TenGigE0/0/0/17

Show more

Update

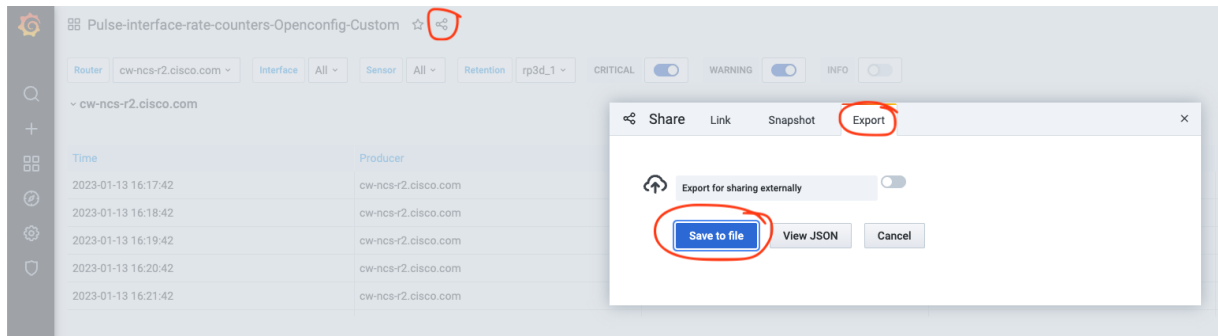
- Change query for the data

Router: cw-ncs-r2.cisco.com | Interface: Bundle-Ether101 | Sensor: All | Retention: rp3d_1 | Fill | Fit | Exact | Last 1 hour

Time	Producer	name	Interface	InOctets	OutOctets
2023-01-13 16:05:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:06:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:07:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:08:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:09:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:10:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:11:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:12:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:13:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:14:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:15:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:16:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0
2023-01-13 16:17:42	cw-ncs-r2.cisco.com	Bundle-Ether101	Bundle-Ether101	0	0

Query: SELECT 'name' as 'Interface', 'counters_in-octets' AS 'InOctets', 'counters_out-octets' AS 'OutOctets' FROM \$RP'openconfig-interfaces:interfaces/interface/state' WHERE "Producer" =~ /\$Router\$/ AND "name" =~ /\$Interface\$/ AND TimeFilter GROUP BY Producer, 'name'

- After all edits are completed, export the dashboard to .json file

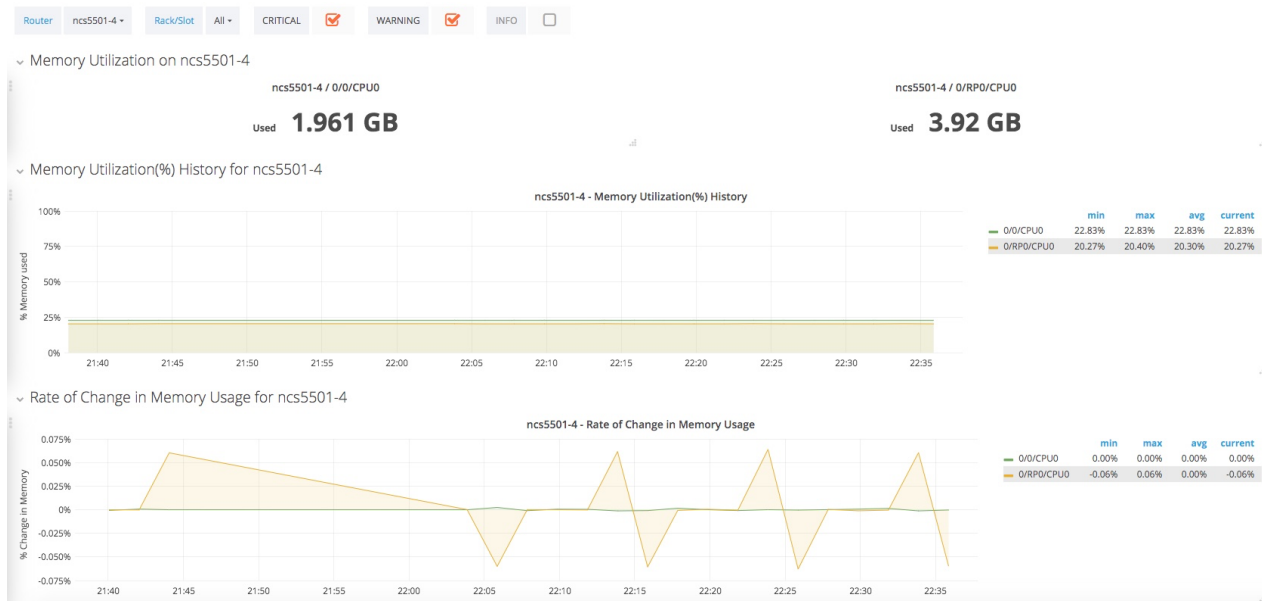


- Adding the new dashboard to KPI
 - Before updating the KPI tarball with this new dashboard, do the following change to the dashboard json file to remove the `uid` field and save

```
"timezone": "browser",
"title": "Pulse-interface-rate-counters-Openconfig-Custom",
"uid": "9IKwvQh4k", <<< remove this line >>>
"version": 4
}
```

- Update the kpi tarball and `Import` the entire KPI pack into crosswork and confirm changes are good by disabling / enabling the KPI again

Dashboard Layout components for reference



- Top band with drop down menus representing `templating` variables
- Check boxes representing selection of Alerts shown as vertical lines called `annotations`
- Rows containing one or more `panels`

Templating / Drop down selectors

- `templating` is a way to make dashboards more usable by being able to drill down and enable visual debugging

It is achieved using a set of variables, with labels and options like `Select All`, `Multi Selection` etc.

Items in each of these variables are loaded dynamically based on `InfluxQL` queries. Queries used here result in

- Controlling the `repeat` functionality
- Panel types available
- Showing Alerts on panels

Templating and Customization

- Using template variables in `InfluxQL` queries
- Hiding and pre-setting values for `Template` variables

Adding / Updating rows and panels

- Basics of `influxQL` , Usage of `group-by`
- Debugging Queries
- Using keys in setting up `Legends`
- Using `group-by time()` for `aggregation`
- Adding Single Stat panels
- Using `repeat` functionality

More settings for panels

- points vs lines vs histograms
- Pie Charts
- Units and labels
- Stacking Charts
- Tweaking Legends